Usually the atomisers on carburettors intended for two-stroke engines are manufactured in two types: with either **long** or **short** upper parts (figure 23). The atomisers with **longer** upper parts cause a weakening of the mixture at low speeds and during acceleration from low speed; on the other hand, atomisers with **shorter** upper parts produce extra enrichment. Carburettors for racing motorcycles use atomisers with short upper parts.

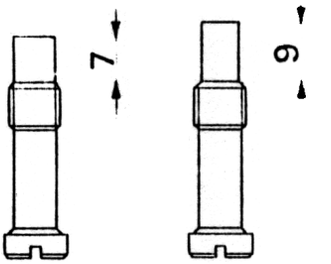

fig. 23

3.6.2. Full-Throttle system as usually used on 4-Stroke engines and also on two-Stroke Engines in special applications.

Figure 24 shows the full-throttle system used on four-stroke engines which utilises air to change the amount of fuel delivered by atomiser following sudden throttle openings.

There are several sideholes (6) in the atomiser(5), communicating with the air intake (2). On opening the throttle fuel metered by the main jet (3) flows into the atomiser where it mixes with air drawn through the side holes of the atomiser and the resulting fuel-air emulsion flows into the barrel (4) where it further mixes with air coming from the main intake (1).

A larger internal diameter of the needlejet-atomiser produces an increase in fuel delivery at all throttle valve positions while a smaller size results in a decrease in fuel delivery at all throttle valve openings.

The atomisers fitted to carburettors inteded for four-stroke engines are manufactured with different types of side drillings because the positions of these holes affect acceleration response.

Atomiser holes positioned high up cause a weakening in the mixture since they are above the float chamber fuel level and only let air in; conversely, holes lower down cause mixture enrichment because they are below the chamber fuel level and draw fuel from the well to the barrel.

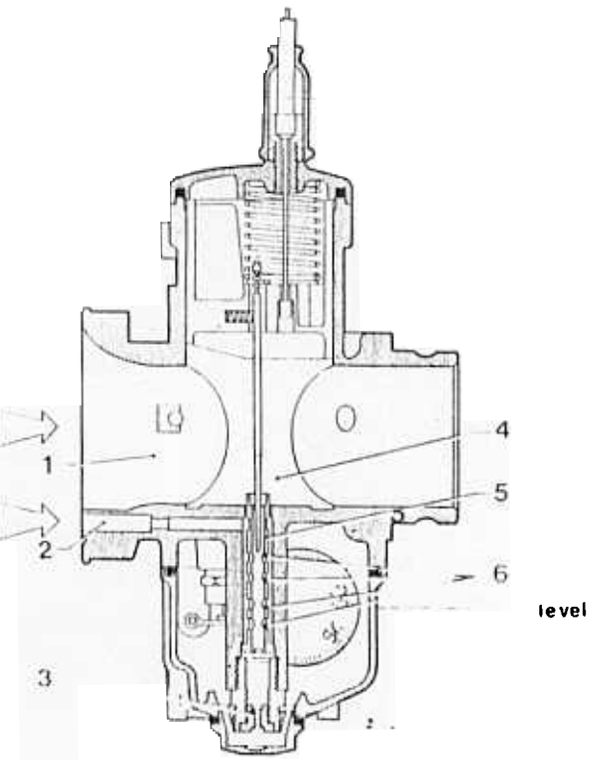

fig. 24

The result is that, to weaken the mixture under acceleration, atomizers with holes drilled higher up are required, while to enrich the mixture, atomisers with holes lower down are needed. The holes' diameter determines how long the well takes to empty and it is therefore also necessary to select a suitable size.

3.6.3. Selection of the throttle valve cutaway.

Following progression and on opening the throttle further up to approximately one-quarter, the partiel vacuum present in the mixture chamber draws fuel up through the atomiser. In this operating phase the effective fuel passage area is determined by the atomiser-needlejet internal diameter and by the varying section of the tapered-needle moving up and down inside it.
The deciding factor which regulates the air flow in this phase is the throttle valve cutaway (figure 25).

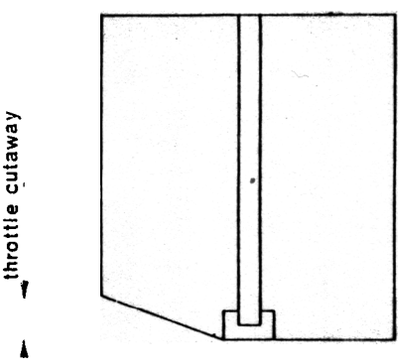

fig. 25